

ABSTRACT

A method and apparatus are provided for flexible time-division multiplexing, and demultiplexing, of serial line data, from 1-n client lines, based on the SONET standard (e.g. OC-48 or OC-192) whereby a predetermined and reconfigurable number of STS-1s are allocated to each client. A multiplexer includes 1 to n mappers for mapping the data of 1 to n clients, according to a predetermined bandwidth allocation, to an N x STS-1 SONET payload, each mapper using y STS-1s where y is 0 to N, the y STS-1s being selected on a sequential or non-sequential concatenation basis from the N STS-1s. Each mapper maps the data of one client and each allocated STS-1 is allocated to one client and the total number of STS-1s allocated to the clients is less than or equal to N. An aggregator aggregates the mapped data into a composite STS payload comprising N STS-1s. A bandwidth allocation receiver receives the bandwidth allocation. The bandwidth allocation may be received from a source external to the multiplexer and the source may be a network controller. A demultiplexer includes a deaggregator for deaggregating the STS payload to provide the mapped data for the clients. 1 to n demappers demap the client data according to the predetermined bandwidth allocation. A bandwidth allocation receiver receives the bandwidth allocation.